OVERVIEW OF PROGRAM COMPONENTS

Using Research to Improve Health:

FIVE YEARS OF ACTIVITY AT AHFMR

1995 2000

ALBERTA HERITAGE
FOUNDATION FOR
MEDICAL RESEARCH

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Let's imagine that Alberta health researchers have learned something compelling about how to identify and effectively influence teenagers at risk of starting to smoke. What is our strategy for getting the results of that research to those who can use the information and for helping them to apply those research findings appropriately? How can we make sure that school boards, teachers, parents, school nurses, and family physicians throughout the province receive this information and use it to improve their success in reaching these young people? And how can we be certain that our message will get across quickly?

Introduction

These are more difficult questions to answer than they might appear to be. Traditionally, health research results are shared at professional meetings and published in professional journals. Press releases are issued when there is something to celebrate, and some of the details make their way into newsletters and onto conference agendas. But progress in biomedical and applied health research can be slow to affect what happens in healthcare planning, in clinics, hospitals, and in doctors' offices.

The challenge is to go beyond what has traditionally been done. To pay as much attention to applying the research as we do to the research itself. To ensure that research findings make their way into clinical practice and policy settings as quickly as possible.

The Alberta Heritage Foundation for Medical Research (AHFMR) has always been and continues to be committed to facilitating the uptake and use of research findings in decisions and outcomes within the health system. We are calling the range of activities related to this process "research in practice," and we see this perspective being applied at all stages of the development of health knowledge, from original research all the way to our final goals of improved health of the population and better health system outcomes.

This two volume publication is the first comprehensive report to bring together information about all of those AHFMR activities that relate to the policy and service delivery end of the health spectrum. These two volumes highlight activities that fall within the rubric of "research in practice" and are designed to provide both an overview of the components of the Foundation's Health Research Program (Volume I) and an inventory of funded activities during the years 1995 to 2000 (Volume II). We are hopeful that it will serve as a gateway into the health research activities supported by the Foundation – and that it will encourage and support connections among all stakeholders in health research.

2 FROM YESTERDAY TO TODAY: HISTORY AND CONTEXT

Research-based practice does not follow automatically once knowledge is generated through research. We need to focus on it specifically and nurture its growth.

Since the government of Alberta established the Alberta Heritage Foundation for Medical Research in 1980, the Foundation has built a first-class research community by supporting excellence in biomedical and other health research. In its first decade, it concentrated on programs for recruiting and supporting highly qualified biomedical researchers. AHFMR was particularly interested in developing a solid foundation of excellent biomedical and clinical research and researchers, and in developing and maintaining a cadre of investigators who would directly translate the findings of research into patient care and community health services through the medical education system, through clinical practice, or through conferences and published studies.

These efforts have built an internationally recognized research community with some of the finest laboratories, facilities, and training programs available. They also led, in 1985, to the establishment of a Technology Commercialization program to provide support for Alberta innovators as they turn their ideas and scientific findings into successful commercial health products – another critical step in helping to deliver the fruits of health research to the population.

In the early to mid-1990s, Alberta – along with much of the rest of Canada – began to reorganize its healthcare system. Healthcare reform resulted in the regionalization of the system and a greater interest in the broader determinants of health. At about the same time as this reform got underway, it became widely recognized that decisions in health care could be enhanced by evidence derived from sound research. But with the increasing size and complexity of the health system, it was also recognized that past methods of dispersing research information would not have the desired effect on healthcare decision-making.

To address this changing environment, the trustees and management of the Foundation held extensive consultations with researchers and research users and developed a strategic plan in 1992. This plan included the commitment "To expand AHFMR support of patient-based and health research in Alberta and lead new initiatives in these areas." [*Moving Forward, Strategic Planning Report, June 1992*]

The expansion into patient-based and applied health research has been a natural step in AHFMR's evolution. As a direct result of the Strategic Plan, the Foundation augmented its programs to include a broader spectrum of activities that support health services research and population health research. For example, an AHFMR grant to the medical libraries at the University of Alberta and the University of Calgary made it possible to establish the Health Knowledge Network in 1993.

During this time, health research was also supported by Alberta Health through the Mental Health Research Fund and the Health Services Research and Innovation Fund. Alberta Health expanded its commitment to research with the creation of the Health Technology Assessment Unit in 1993.

This shared interest in health research led to the 1995 Health Research Collaboration Agreement between the Foundation and Alberta Health. Under the terms of this agreement, the Foundation would develop a provincial agenda for health research, house the Health Technology Assessment Unit, and initiate activities designed to disseminate research results.

The AHFMR agreed to develop a health research agenda, drawing on input from a number of advisory committees. In addition, two grants programs – the Health Services Research and Innovation Fund and the Mental Health Research Fund – were transferred from Alberta Health to the Foundation and combined as the Health Research Fund.

The Health Research Advisory Committee was formed in 1995 under the Health Research Collaboration Agreement, to advise on this new direction. Its initial work resulted in the creation of the Health Research Agenda, which outlined important general principles, issues, and priorities for health research in the province. During the same period, the Foundation initiated other programs to support health research, such as the Population Health Investigator, Health Scholar, and Health Senior Scholar awards.

With health reform well underway and 17 health regions established in Alberta, the Foundation turned its attention to developing capacity within these regions. In 1995, a new program called SEARCH (Swift Efficient Application of Research in Community Health) was officially established as a community-based training and development program to enhance the capacity to access and use research findings, and to participate in research within the province's health authorities.

In its commitment to disseminate research, the Foundation, through its programs, has continued to support the traditional routes of research communication, including meetings, conferences, and scholarly publications. However, as these routes are not always helpful in transferring information across a wide spectrum of health disciplines, the Foundation created the Dissemination Program in 1996 to extend its effectiveness and to explore ways of enhancing communication in a reformed healthcare system.

Chronology of Key Initiatives at AHFMR

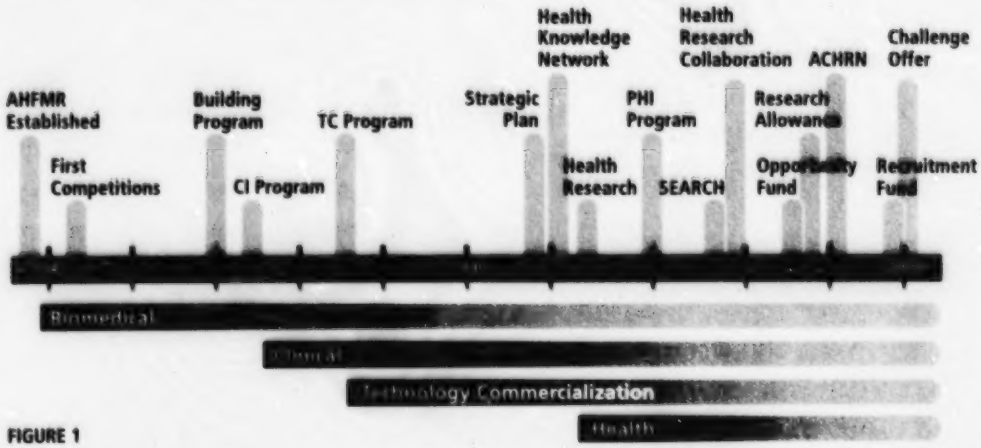

FIGURE 1

3 HEALTH RESEARCH IN PRACTICE: THE FRAMEWORK

3.1 Terminology

AHFMR's continuing expansion into health research reflects the growing complexity of the healthcare system. The Alberta Heritage Foundation for Medical Research views **health research** as a global term for any research undertaken to identify, resolve, and prevent health problems and improve well-being. This includes the biomedical research that accounts for most of the Foundation's funding.

Biomedical and clinical research are vitally important in building a knowledge base and providing information for other disciplines to draw upon. Much of this fundamental research informs continuing research, contributes to our ability to understand health and illness, and will ultimately be applied to the health system and to patient care. The focus of this report is specifically on **applied health research,** which is defined as research that directly informs the management of the health system and care of patients. Research from a broad range of disciplines provides valuable insights for use in applied work. In addition, several perspectives and methods which have developed specifically within the health area are important: population health, health services, health technology assessment, health policy and health resources research all come under the heading of applied health research.

Support for applied health research has grown substantially at AHFMR in the last five years, both because of direct support from the Foundation's endowment and as a result of the Health Research Collaboration Agreement with Alberta Health. Although support has grown from $2,019,903 in 1995/96 (7 percent of total expenditures) to $8,550,027 in 1999/2000 (19 percent of total expenditures), it is still a relatively small proportion of the Foundation's investment. Investment in biomedical research continues to be an important focus of AHFMR. This emphasis, as well as fundamental research in all relevant disciplines, will continue to provide the foundation for applied work.

3.2 The Consultation Process

The principle that research and practice should be linked and that each informs the other has a long tradition in medicine and health care. The links among education, practice, and research were clearly acknowledged in the design of all the Foundation's early programs. But with the increasing complexity of the healthcare system, and the realization that traditional methods of information dispersal did not have enough impact on healthcare practice, more attention has been paid to the concept of "research in practice" over the last five years.

In 1999, the Foundation created the Research in Practice Task Force to guide the development of strategies for putting research into practice. With representation from major constituencies in health research, its aim was to attract input from a wide range of individual, professional, and organizational stakeholders to identify effective strategies that would encourage the use of research findings in all areas of the health system.

The task force began its work by writing a consultation document – *Research in Practice in the Alberta Health System: Where to From Here?* – that called for ideas on what could be done to increase the impact of health research on the health of Albertans and on our health system. The document was circulated widely, both to individuals and to groups, and visits were made to regional health authorities and other key organizations. It is available online at www.ahfmr.ab.ca.

After considering the work and advice of a number of groups, organizations, and stakeholders, including the RIP Task Force, the Health Research Advisory Committee compiled a set of ***directions for action***. In general, the Committee supported the research in practice initiatives in place and suggested how the Foundation, ***in partnership*** with all healthcare stakeholders, can build on Alberta's strengths to take research into community practice and to attract community healthcare professionals into research.

Directions for Action for Alberta Stakeholders

1. Enhance Capacity

- Increase capacity to do province-wide health research
- Increase capacity to synthesize existing research evidence
- Ensure availability of data

2. Communicate

- Articulate roles clearly
- Create platforms to support networking and dissemination on specific topics
- Share research progress annually
- Make synthesized information available in timely fashion to those who can use it

3. Shift Culture

- Value evaluation- and evidence-based decision-making at all levels
- Nurture appreciation of respective (researcher/user) points of view
- Focus on research relevant to health authorities

4. Link and Collaborate

- Reduce duplication
- Create an Alberta platform for research-based action on specific issues
- Support networking and collaborative opportunities
- Create a provincial framework to set priorities for research

5. Monitor/Evaluate

- Develop measures to assess progress in all stages of research use
- Develop mechanisms to assess progress throughout the province
- Develop standards for evaluation

6. Recognize and Reward

- Recognize and create incentives for collaboration between researchers and users and for evidence-based action

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3.3 The Framework

The Research in Practice Task Force drafted a framework to serve as a guide to the process of using research knowledge in healthcare decision-making. The framework breaks the process into six components. While these components are not necessarily linear, each of them contributes to building capacity for both doing and using research in the healthcare system. Certain linking activities are required to make the process possible, including needs assessment related to all components.

Building research capacity in Alberta was the impetus for the creation of the AHFMR, with its mandate "to support a community of researchers who generate knowledge that improves the health and quality of life of Albertans and people throughout the world."

The Foundation achieves this by ensuring that qualified people are in place where they are needed and by creating a sustainable infrastructure that supports all aspects of applied health research, including continuing education, mentoring, communication technology and resources, publications, and other tools. At AHFMR we also recognize that putting research into practice requires system-wide commitment. Our programs contribute to the building of this commitment.

The following section of this report uses the Research in Practice Framework as a starting point to describe research in practice activities and programs supported by AHFMR from 1995-2000.

Adding to What We Know
Assessing What We Know
Providing Access to What We Know
Linking Researchers to Research Users
Applying Research Results
Measuring Progress
Identifying Areas of Need

FIGURE 2

4 HEALTH RESEARCH IN PRACTICE FRAMEWORK: ALIGNING AHFMR ACTIVITIES

Each AHFMR program contributes to building capacity for research in practice. But each program is also multi-faceted and has elements that contribute to several of the six components of the process.

The illustration below demonstrates how AHFMR health research programs fit within this process. Each cell within the matrix corresponds to an AHFMR program or activity and a component of the framework.

Aligning AHFMR Activities

	Adding to Knowledge	Assessing Knowledge	Access	Linking	Applying Research	Measuring Progress
Career Awards	+++	++	++	+	+	+
Training Awards	+++	+	++	+	+	+
Operating Grants	+++	+	+	+	+	+
SEARCH	++	+	+	+++	+	+
HTA	++	+++	+	+	+	+
Dissemination		++	+++	++	+	+
Communication			++			+
Travel and Visiting Lecturer Grants			+	+++	+	+
Conference and Workshops			+	+++	+	+
TC			+	++	+++	+

FIGURE 3

Legend: + + + = primary element of program
+ + = secondary element of program
+ = program contains some element

4.1 Adding to What We Know

> ***Identifying areas where new knowledge is needed and then discovering that knowledge is an ongoing process. When research is complete, the job is not done until we have considered how it affects healthcare practice.***

The generation of new knowledge about health, through investigator-initiated research involving many disciplines, is the foundation of applied health research and is linked to all other stages of the research in practice process.

AHFMR funding has contributed significantly to a research environment in Alberta that attracts and retains the best scientists involved in a wide spectrum of research from the laboratory to the community. The Foundation supports the generation of new knowledge primarily through two programs – personnel awards (which includes training awards as well as career awards) and operating grants.

Supporting Researchers through Personnel Awards

Investing in people through the provision of salary support has been the major strategy for the Foundation since its inception. AHFMR does this through its personnel awards program supporting researchers-in-training and senior researchers recruited from Alberta and around the world. Since 1980, it has supported more than 6,000 positions in biomedical, clinical, and applied health research, providing unprecedented opportunities for researchers in their careers. Over 500 of these positions have been for researchers working in the applied health area.

Training Awards

Training Awards are for students or individuals who are still formally pursuing advanced education. Although the training awards are usually for study in Alberta, they may be taken up by Albertans wishing to pursue further training outside the province.

The **Heritage Summer Studentship** program offers an opportunity for students with records of exceptional academic performance to participate directly in medical or health research in Alberta during the summer months. The program is designed to encourage students to consider formal training and a career in health research. Between 1995 and 2000, the program handed out 63 awards to those working in applied areas.

The **Heritage Full-Time Health Studentship** program enables academically superior post-graduate students to undertake full-time research training leading to an MSc or PhD degree or equivalent in a discipline relevant to the objectives of the Foundation. Studentships are also available to part-time students. Twenty-seven full-time studentships and one part-time studentship were given in 1995-2000, seven of which were mental health awards.

The **Heritage Full-Time Fellowship** program is designed to enable highly qualified doctoral graduates of programs relevant to the objective of the Foundation to prepare for careers as independent investigators in medical or health research. These awards are usually for study at an Alberta university. The candidates are expected to undertake a minimum of two years' full-time research in an appropriate milieu with a faculty supervisor who has a record of productive research and adequate competitively-acquired research funding. From 1995-2000, two of these fellowships were awarded in the applied health area.

The **Heritage Clinical Fellowship** program is designed to support highly qualified individuals who hold an MD or DDS degree and who anticipate undertaking a career in health-related or clinical research in the province of Alberta. This award is normally for a minimum of two years and a maximum of four years.

The **Dr. Lionel E. McLeod Health Research Scholarship** was established in memory of Dr. McLeod, a physician, educator, member of the medical faculty at the University of Alberta and the University of Calgary, and founding president of the Alberta Heritage Foundation for Medical Research (1981-1990). The scholarship allows academically superior students in a full-time university program to undertake full-time research training. This scholarships is awarded to one student per year.

Career Awards

Career awards are for independent researchers in Alberta and are aimed at helping attract individuals to the province who will devote the majority of their time (more than 75 percent) to research. The review committee for senior awards includes international reviewers.

At the time of their recruitment to Alberta, career investigators are also eligible to apply for ***Establishment Grants*** to help initiate their research activities. These grants are designed to assist in the start-up of laboratories and/or research projects of those candidates holding various AHFMR awards. Twenty-three career investigators in applied health research were awarded Establishment Grants in 1995-2000.

The **Heritage Population Health Investigator** award helps recruit and develop well trained investigators in the fields of population health research, in areas such as quantitative and population sciences, operations research, decision sciences and computer sciences, health services research, social and behavioural sciences, and the humanities. It is the key award in applied health and is intended for investigators who have recently completed postdoctoral research training or its equivalent, but have not yet established a significant independent research record. Between 1995 and 2000, this award was given to 14 researchers in Alberta, all of whom also received Establishment awards. The following brief descriptions are provided to give the reader a sense of the type of research being conducted by population health investigators.

One might think that ***fear of falling*** would make an elderly person more cautious and, therefore, less at risk of falls. But Dr. Lesley Brown of the Department of Kinesiology at the University of Lethbridge feels the opposite is true. She believes that the anxiety associated with fear of falling actually increases the risk of future falls. Her research is investigating whether anxiety-related consequences such as a tentative style of walking and/or being overly attentive about balance are beneficial or harmful balance-preserving strategies. The study is expected to lead to intervention studies that examine the use of confidence training as a tool for fall prevention.

When healthcare systems must keep vigilant watch on the bottom line, what ***legal and ethical issues*** will arise from the allocation and use of genetics services? In research being carried out through the University of Alberta's Health Law Institute, Dr. Timothy Caulfield is helping healthcare decision-makers to navigate the complex course of allocating genetic services. His studies will identify the rights, duties, and interests of the various stakeholders, determine the suitability of the current legal framework, and assist decision-makers in developing allocation policies for the future.

For ***women at mid-life***, health is not a simple matter. Although it is perceived to be the middle-aged woman's chief health concern, menopause is only a small part of a much larger picture that includes her social, cultural, and economic circumstances. Dr. Lynn Meadows is convinced that the many variables affecting a woman's life at this time need to be taken into account in order to develop a primary care intervention that will meet women's health and information needs. Working out of the Faculty of Medicine at the University of Calgary, she is conducting Alberta's first major study into women's health, surveying women of different ethnic and socio-economic backgrounds to determine which issues they believe to be health-related, and which need to be approached from another perspective.

Heritage Health Scholars are recently established researchers with a record of excellent independent research activity that is not yet at the higher level of experience expected of a more senior researcher. The Foundation has provided support for one Health Scholar between 1995 and 2000. Kim Raine Travers of the University of Alberta received support for 1999-2004 and also received an Establishment Grant.

The **Heritage Senior Health Scholar** award helps recruit and support exceptional investigators who are more senior than Heritage Health Scholars, but whose scientific career has not matured enough for them to compete effectively for the Heritage Health Scientist award. Applicants for the senior awards are usually Heritage Scholars who wish to continue to devote most of their time to research. For well-trained investigators completing a term as a Scholar, or its equivalent, from another agency, this designation can also be an entry point into the senior awards program. From 1995-2000, this award was granted to five researchers in Alberta. These researchers also received Establishment grants. Following are three examples of the research being conducted by Senior Health Scholars.

By developing methods for ***assessing the costs and benefits of health care*** and applying them in decision-making, economics can help healthcare funders meet the needs and demands of the communities they serve. But such tough decision-making requires asking some tough questions. At the University of Calgary, Dr. Cam Donaldson, Faculties of Medicine and Social Sciences, is exploring the many questions that must be addressed if economic analysis is to be useful for those who are making decisions regarding how much health care can be provided with limited resources. These questions range from "How do we measure the value the community places on different ways of providing health care to different groups of society?" to "What are the costs and benefits of health care given to important groups, such as people with cancer, HIV, Alzheimer's disease, and kidney failure?" Dr. Donaldson is hopeful that his team's research findings will lead to different ways of organizing and financing health care, and to directions on how priorities can be changed in the provision of health care and health promotion programs.

Does having a ***strong support network*** have an impact on health? Studies are showing that the answer to this question is a resounding "Yes." In research being undertaken at the Centre for Health Promotion Studies at the University of Alberta, Dr. Miriam Stewart addresses the importance of social support as a determinant of health in a variety of populations and contexts. Her ongoing projects include support of family caregivers of seniors with chronic conditions, low-income consumers' access to community health services, online support needs of teens with disabilities, social support among immigrants and refugees, social isolation and exclusion among low-income populations, and improving the mental health of children born to adolescent mothers. It is expected that this research looking at assessment, intervention, and evaluation will yield insights that will be helpful in designing programs, services, and policies that enhance accessibility, foster behavioural changes, and promote social integration and community participation.

Millions of people around the world suffer from ***chronic back pain,*** much of it caused by degeneration of the discs and loss of bone density. In studies with twins, Dr. Tapio Videman, of the Faculty of Rehabilitation Medicine at the University of Alberta, is looking at the genetic and environmental origins of intervertebral disc degeneration and osteoporosis. By working with twins, he is able to estimate how much of disc generation is the result of genetic influences and how much has its roots in other factors. His research findings may point the way to a very different approach to treating back pain in the future – and save billions of dollars for healthcare systems.

Heritage Health Scientists are the most senior investigators supported by the Foundation. The award is intended for investigators of very high caliber who provide leadership to the Alberta scientific community. Heritage Scientists are internationally recognized scientific leaders who have clearly established themselves in their field of study. No Heritage Health Scientists have been funded to date.

Supporting Research through Operating Grants

Most operating grants to support investigator-initiated research have come from two funds:

- The Health Research Fund
- AHFMR Opportunity Fund

These operating grants provide funds for projects that have been reviewed by a group of the investigators' peers from within and outside the province. Establishment Grants given in collaboration with senior personnel awards also contribute to investigators' research operations.

The Health Research Fund

Administered by AHFMR on behalf of Alberta Health, the Health Research Fund was shaped through consultation with many individuals and organizations with an interest in health research. It provides opportunities for relevant, high-quality health research across the entire spectrum, including mental health research. To ensure that the work the Foundation sponsors is of the greatest value, all grant applications are subjected to a stringent peer review involving researchers from within and outside Alberta, including members of the academic community, as well as those who are employed in regional health authorities.

From 1995-2000, the Foundation provided more than five million dollars through this fund, supporting Alberta researchers' projects. The Health Research Fund supports research projects which can be classified according to four categories or research types:

- Health Services Research.
- Health Resources Research.
- Population Health Research.
- Health Policy Research.

A few examples of research projects from each of these categories are given here to provide the reader with an understanding of the scope of research supported. For a comprehensive listing of research projects, *see Using Research to Improve Health: Five Years of Activity at AHFMR-Volume 2, An Inventory of Health Research 1995-2000.*

Health Services Research involves the assessment or evaluation of some aspect of a specific health-related service, procedure, or intervention. Projects are further classified according to whether they are investigating diagnosis, therapeutics, allied therapies, or levels of care.

Chelation therapy is an alternative method of treating coronary artery disease. The treatment is neither approved by any professional medical association nor funded by any health insurance agency. Dr. Merril L. Knudtson of the Faculty of Medicine, University of Calgary, is testing the effectiveness of chelation therapy by measuring patients at the onset and at the end of therapy to see if there is a difference in the cardiac status of those who were treated with chelation and those who received conventional treatment.

Dr. Ian Macdonald of the Department of Ophthalmology at the University of Alberta has developed a ***diagnostic test for a hereditary eye disorder,*** choroideremia, which affects males and leads to blindness. A diagnostic test such as Dr. Macdonald's could assist Alberta's clinicians in confirming the condition in young people.

Dr. Marja Verhoef, a researcher in the Department of Community Health Sciences at the University of Calgary, led a study of the ***effectiveness of chiropractic treatment*** in managing headaches. The study followed 120 patients to assess if treating their severe headaches with a combination of standard and chiropractic treatments was more effective than standard medical treatment alone.

Health Resources Research refers to the assessment or evaluation of a resource used in the delivery of health services. Resource characteristics include capability (what can be done), capacity (how much can be done), and quality (how well it can be done). Health resources research projects are further classified according to human resources, health facilities, programs of care, and medical technology or drug.

Every year, roughly 50 percent of adults experience ***low back pain;*** 15 to 20 percent of them will seek medical care to relieve their discomfort – but they will not all receive the same advice. There are significant variations in the way physicians manage low back pain. Dr. Maria Suarez-Almazor of the Department of Public Health Sciences at the University of Alberta looked at the cost-effectiveness of new clinical practice guidelines for the use of physical therapy for patients with low back pain.

Approximately six of every 1,000 children are born with mild to ***profound hearing loss.*** Early detection of that hearing loss is important, because hearing is critical to speech and language development, particularly in the first three years of life. In a study led by Dr. Joseph Dort of the Faculty of Medicine at the University of Calgary, a new method of testing infant hearing loss was compared to two other methods currently being used. Approximately 3,500 newborns at the Foothills Hospital were screened for hearing loss over a two-year period.

Falls are the most common cause of accidental injury and accidental death ***among seniors*** and represent a significant cost to the healthcare system. Dr. David Hogan of the Faculty of Medicine at the University of Calgary is comparing the results of a standard care program to those of a new education program aimed at preventing falls in those seniors who have already had a fall. Cost-effectiveness will be assessed by comparing the total cost of the study assessment and recommended interventions with the expected savings in inpatient hospital costs of the experimental group.

Population Health Research is the assessment of the health of the general population or a specific subset of the population as measured by health status indicators and influenced by health programs or by individual characteristics of those studied.

Dr. Kerry Courneya, of the Faculty of Physical Education and Recreation, University of Alberta is studying the ***effects of exercise*** on the quality of life and physical fitness of patients who have had surgery for colorectal cancer. The researcher is attempting to determine if this type of therapy can have positive effects on the physical, social, and emotional life of cancer patients.

A 1994-95 National Population Health Survey suggests one in 20 Canadians experienced depression in the previous year. Understanding the factors linked to ***depression*** can lessen its effect on those who suffer from the disease. Dr. Keith Dobson's study at the University of Calgary, Department of Psychology aims to identify factors linked to a relapse.

Approximately 800-900 babies are referred every year to early intervention programs in Alberta. Dr. Johanna Darrah of the Department of Physical Therapy, University of Alberta is studying ***infant development*** to identify patterns in normal development that can be used to make these screening and intervention programs more effective.

Health Policy Research is the analysis or assessment of a specific health policy. The type of policy is further classified according to the aspect of health care addressed, such as organization, delivery, education, the allocation of resources, or funding.

Dr. Allison McKinnon of the Faculty of Rehabilitation Medicine at the University of Alberta is looking at a new, combined program for ***rehabilitation services.*** The study examines and compares how the 17 Alberta regional health authorities deliver rehabilitation services under the new Community Rehabilitation Program. The assessment will analyze three outcomes: utilization of services, cost, and patient satisfaction.

The demand for home care and reduced family involvement in ***caring for seniors*** may have resulted in less support and fewer resources for them and their caregivers. Chinook Health Region researchers, Drs. Paul Hasselback and Christopher Armstrong-Esther are hopeful that their study will lead to an understanding of the factors that enable seniors to continue living in their homes as their level of dependency and need changes.

One of the major causes of serious illness in ***newborn infants*** is ***Group B Streptococcus*** contracted at birth from the mother. Dr. Dele Davies of the Faculty of Medicine at the University of Calgary is looking at how clinical practice is changing following the introduction of screening guidelines in 1994. He establishes rates of the disease in Alberta, identifies risk factors that can be changed, and monitors lab practices to ensure efficient screening tests for pregnant women.

AHFMR Opportunity Fund

The AHFMR Opportunity Fund is intended to help Alberta institutions (universities and regional health authorities) to develop internationally competitive health research partnerships in the province. The fund is designed to provide needed provincial contributions to enhance funding from other partners – for example, infrastructure support through the Canada Foundation for Innovation, and health research project support in partnership with The Canadian Health Services Research Foundation (CHSRF), or the Alberta Intellectual Infrastructure Partnership Program. Since it was created in 1997, the fund has provided more than $335,000 in matching funds to five Alberta researchers working in applied health research.

The Foundation is the largest funding partner in the CHSRF's open grants competition and is second to Ontario in the overall matching funding. Since this competition is triggered by the quality of the applications and the partnerships with decision-makers, it bodes well for a promising future for applied health research in the province.

Funding from the Opportunity Fund allowed Dr. Carol Adair of the Alberta Mental Health Board to expand the scope of her research into ***service delivery patterns*** for those who suffer from severe, ***persistent mental illness***. While much emphasis has been placed on the necessity of continuity of care for this population group, continuity of care has not been systematically measured. The project has become a truly collaborative one, with CHSRF, AHFMR, Alberta Mental Health, the Institute of Pharmaco-Economics, the David Thompson Health Region, and the Janssen and Eli-Lilly pharmaceutical companies as co-sponsors. The Opportunity Fund support helped make it possible to expand a project that will make an important contribution to our understanding of the effectiveness of health services for those who suffer from severe mental illness.

Overview of Grants and Awards

Taking into account both project operating grants and personnel awards for the five years covered by this report, the largest proportion of the 141 awards in health research were population-health-oriented (36 percent). Health services were close behind at 32 percent, and health policy and health resource projects were less common (19 percent and 13 percent, respectively). The relative proportions in each area are approximately the same in terms of both number of awards and total spending.

Almost half (46 percent) of the 106 projects that involved studies related to a specific disease or condition were concerned with mental health, which is an indicator of the tremendous burden of mental illness in our communities. Other conditions or topics of focus included, in decreasing order of frequency: respiratory system (11 percent); cancer (8 percent); pregnancy and childbirth (7 percent); and injuries and nervous system (5 percent) each.

Distribution of Grants and Awards by Health Research Category 1995 - 2000

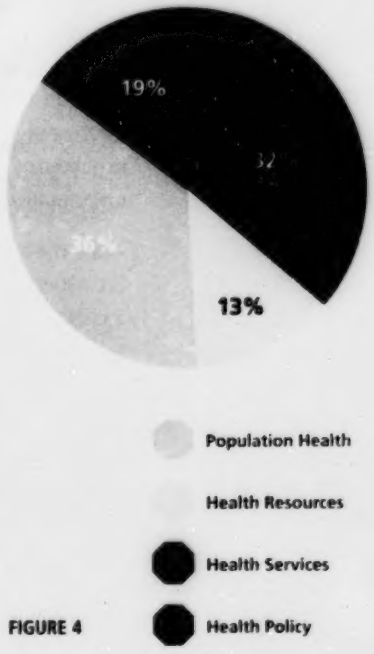

FIGURE 4

Contributions from Other AHFMR Programs

Other programs within AHFMR also provide a degree of support in the generation of new knowledge in health care. The SEARCH program has been instrumental in enabling community-based health researchers to discover knowledge that is beneficial to the needs of their respective communities. Health research carried out by SEARCH participants as part of their engagement in the program has led to broadly recognized contributions to knowledge in community health. Projects undertaken in the SEARCH program cover a full range of health research disciplines, including epidemiological analysis, community needs assessment, program evaluation, health services policy analysis, and outcome and health status measurement.

Details of each of these awards and of other categories of grants not included in this analysis are included in *Using Research to Improve Health: Five Years of Activity at AHFMR-Volume 2, An Inventory of Health Research 1995-2000.*

4.2 Assessing What We Know

Knowledge synthesis, or assessing the value and potential application of research results, is key to the success of applied research. We need to keep track of the latest research, assess its potential value, and summarize what is known in a format that will be helpful to those who will use it.

Healthcare decision-makers want and need to base their decisions on information that is useful, credible, complete, appropriate, and balanced. But since millions of articles are published in tens of thousands of journals every year - and many more go unpublished - sifting through the enormous amount of information available on health and health care would be an onerous task.

For this reason, knowledge synthesis has become a specific discipline within the field of health research, one that requires special skills and expertise. Synthesis involves the identification, selection, and appraisal or critical review of existing literature to assess its value and potential application. Unpublished studies are often a part of the review. This synthesis of information helps to determine the point at which there is enough evidence to warrant a change in practice or policy.

Such knowledge synthesis is an element of all research projects funded by the AHFMR, but it is the focus of the Health Technology Assessment program and the Research Overview projects.

Health Technology Assessment

Just as healthcare decision-makers are inundated with information, so are they overwhelmed by the rapid evolution of new technologies in health care. **Health technology** includes all the interventions and applied knowledge used by healthcare practitioners and systems throughout the entire spectrum of health care – from primary prevention and early detection of disease and risk factors, through diagnosis and treatment, to rehabilitation and palliative care. Drugs, devices, medical and surgical procedures are all included within the definition of health technologies, as are the organizational, administrative, and support systems of healthcare delivery.

With the diffusion of health technology occurring at an unprecedented rate, the challenge for Alberta's healthcare system is to ensure that safe, effective, and economically efficient technologies diffuse rapidly. Those that do not meet these criteria are not adopted, and technologies and techniques that are unproven, unsafe, or ineffective are discontinued.

At the Health Technology Assessment Unit (HTA), all health technology assessments begin with the systematic review of available evidence on the topic of concern. A team of research associates, trained in research, statistical methods, and critical appraisal, assist in the review, often with the support of healthcare technology researchers on short-term placements. The Unit evaluates the properties and effects of healthcare technology and provides information to support all healthcare decisions at local, regional, national, and international levels. It also collaborates with other assessment agencies, health authorities, and university researchers.

Since 1996, the Unit has responded to more than 180 requests, which are provided free of charge. Many of these requests were from Alberta Health and Wellness, but a substantial number came from the regional health authorities, from healthcare and other organizations, as well as from universities and individuals working in the province, elsewhere in Canada, or internationally. The Unit continues to welcome suggestions for future assessments. It may also initiate work when it becomes aware of a health technology that is likely to be significant to Alberta health care.

When staff at the Calgary Regional Health Authority (CRHA) were considering implementing a ***nurse triage system,*** they needed the best available scientific evidence to guide them through their decision-making process. They were anxious to know about the type of qualifications needed to answer and direct callers' queries about acute care, symptom management, referrals, health information and education, and post-acute follow-up. They also wanted information on any evidence of benefits, on service implementation issues such as cost, and on evaluation considerations. For answers to their questions, they turned to the experts at the AHFMR's Health Technology Assessment Unit (HTA), who systematically evaluated the published research on the effectiveness of a nurse triage system and prepared a rapid response in the form of a TechNote.

Products of the Unit

The Health Technology Assessment Unit has developed a series of products in response to questions or issues that arise from its customers. These products vary in their complexity, scope, and the time required for completion. While there is often a direct trade-off between time and thoroughness of the coverage and assessment of the information reviewed, every effort is made not to sacrifice the usefulness of the findings.

Health technology assessment reports are detailed publications, usually involving a comprehensive analysis of the literature and data review, levels of scientific evidence, and an appraisal of the studies' methodological quality. They typically include a synthesis of information obtained from the literature, reference to relevant provincial statistics, and, sometimes, a cost or economic analysis. All reports are refereed by content experts from Alberta and elsewhere. The Regional Health Authorities and members of the AHFMR's Health Technology Assessment Advisory Committee provide comments on the drafts of reports.

Health technology briefs are shorter publications covering more specific issues. Like health technology assessments, these briefs are externally reviewed by individuals with interest or expertise in the field being considered.

TechNotes are brief reports intended to provide short-term advice in response to urgent requests related to policy or administrative decisions. These publications are not externally reviewed.

Information Papers are a review of the information in the literature, but they do not include a critical assessment. They may or may not be externally reviewed.

Techscans offer advice on emerging health technologies. They cover new developments in health technologies (human studies only) that are relevant to Alberta health care in the short to medium term, with a focus on those not yet on the market or in use in the province.

HTA Initiatives is a series of publications and projects to enable regional health authorities to make optimal use of health technology assessment to inform policy and decisions. The first of these, *Framework for Regional Health Authorities to Make Optimal Use of Health Technology Assessment*, was recently distributed to the regional health authorities.

Tech-Wise is a quarterly newsletter that provides current and relevant news and information on health technology assessment to the Alberta healthcare community.

With the exception of TechNotes and Information Papers, which are available upon request, the various HTA publications are readily accessible in full text on the AHFMR web site (www.ahfmr.ab.ca). A list of publications from 1996-2000 appears in Volume II of this publication, as well as on the web site.

The Research Overview Project

Appraising the value and potential application of research in areas of importance to four community groups was a key component of the Research Overview Project conducted between 1996 and 1998. This project also involved a novel approach to linking research users and researchers who could interpret research findings together.

The Research Overview project is described in the next section, Providing Access to Knowledge about Health, as that was the major emphasis. More details on the projects also appear in *Using Research to Improve Health: Five Years of Activity at AHFMR-Volume 2, An Inventory of Health Research 1995-2000.*

4.3 Providing Access to Knowledge about Health

> ***When we have identified potentially influential research results, we must make sure that the information is available to everyone who can use it.***

Traditionally, there has been massive funding to support medical and health research, and some funding for public relations programs to make people aware that the research has been done. There has, however, been very little funding for activity to strategically communicate the results to those who can use the information, and to help them apply it appropriately. This is one reason, among many, for some huge gaps between what we know from research and what we practice in health care.

There is now a movement across North America, Europe, and Australia to reduce these gaps and promote a culture of "evidence-based health care" by strategically communicating research findings to decision-makers and creating systems where they can effectively access, interpret, and apply research. This is the business of dissemination.

Dissemination is both an art and a science and requires special skills and expertise. It has always been an integral part of AHFMR programs – for example, the Foundation's personnel awards play a role in providing access to information, since funded researchers spend up to 25 percent of their time teaching and in other ways interacting with users of research knowledge. But with the changes in the healthcare system, such traditional methods need to be complemented with more interactive activities that improve contact between researchers and research users.

The Foundation established the Dissemination Program in 1996, not only to honour the terms of the Health Research Collaboration Agreement, but also to acknowledge the value of addressing this need. The program focuses on building Alberta's capacity for dissemination and promoting the use of evidence derived from research.

The Dissemination Program

Phase 1 (1996-1998) of the program began with a series of consultations with community and professional organizations in 1996. The responses garnered during these consultations helped to establish the need for more effective dissemination of research findings in the healthcare community and provided information about opportunities and recommendations to assist in achieving this goal. This information, combined with an assessment of the current literature on the topic, led to activities that would broaden our knowledge in this area and test dissemination strategies in Alberta settings. The resulting activities were of two types: one involved the use of research knowledge generated from projects here in Alberta; the other involved a consideration of relevant research in the published literature.

Projects Using Alberta Research

The Policy Forum on Older Drivers revolved around the work of Dr. Allen Dobbs from the University of Alberta. This discussion forum brought together physicians, seniors' organizations, legal professionals, and representatives of the insurance industry, the provincial government, and the Alberta Motor Association. The purpose of the forum was to discuss Dr. Dobbs' work, which showed that elderly drivers could be accurately assessed for driving ability, and its application in practice. The forum was assessed to determine its effectiveness as a dissemination strategy and to identify any issues that would affect putting the research into practice. The event increased user awareness of research findings, facilitated some new long-term relationships between researchers and users, and addressed some interests of both.

Dissemination of Findings within an Organization was the purpose of a 1998 grant given to the Calgary Regional Health Authority to conduct a project entitled *Evaluation of a Community Health Representative on Access to and Utilization of Services by Aboriginal Persons in an Urban Setting.* The original study found that

involving community health representatives in the region was effective in improving knowledge and in coordinating health and community services for aboriginal clients. A small dissemination grant was subsequently awarded to the investigators and a number of complementary dissemination activities were carried out to inform various groups about the findings. Those receiving the information identified both the most relevant findings for them and the most important strategies to take advantage of the new knowledge. Program and policy changes have resulted from the knowledge.

Projects Using Existing Literature

The Research Overview Project involved researchers, community agencies, and AHFMR. A major challenge in using research to impact the health system is to do all of the translational work between research that exists somewhere in the world, and the use of that research in a local situation which may derive some benefit from the findings of that research. Given the demands on their time, decision-makers are more likely to read synthesized research reviews than a large number of individual case studies. And that is only part of the process. The synthesized information needs to be considered and used within a local context that is rarely identical to the one in which the research was conducted. The Research Overview Project was designed to create partnerships between academic and professional and community organizations to produce and disseminate systematic reviews of four research questions chosen for their significance to Alberta's health needs, and to encourage further use of the knowledge contained in the reviews where that was warranted.

Each of the project's multidisciplinary research teams included an academic researcher, members of related professional organizations, a medical librarian, and a research assistant. Following their training in systematic review by resource people from McMaster University, team members developed criteria to determine which research studies would be included in the final review. They then conducted literature reviews, retrieved materials, and, based on the set criteria, determined the strength of all research findings. The final reports were sent to external reviewers, then assessed for usefulness by the sponsoring partners. In two of the projects, where the findings warranted, further activities were initiated.

The Research Overview Pilot Project led to the funding of four different partnership projects:

- Outcomes of Physical Restraint Reduction Programs for Elderly Residents in Long-term Care. Co-sponsor: Professional Council of Licensed Practical Nurses
- Strategies to Manage the Behavioural Symptomatology Associated with SDAT (Alzheimer's Type Dementia). Co-sponsor: Alberta Association of Registered Nurses
- Effectiveness of Interventions to Improve the Use of Medications Prescribed to Elderly Persons with Chronic Conditions. Co-sponsor: the Society for Retired and Semi-Retired
- Current Research Evidence on Selected Treatment Interventions on Soft-tissue Neck Injury Following Trauma. Co-sponsor: College of Physical Therapists of Alberta/Alberta Physiotherapy Association

Team members for each project conducted a systematic review of current literature on the topic. Then, based on their appraisal of the quality of the research they reviewed, they decided whether the results should be disseminated.

In three of the four projects, the results were found to be important enough to affect practice, and dissemination activities were undertaken. These included publishing the findings in professional newsletters and on web sites, presenting the results to individuals and groups who were in a position to effect practice change, meeting with colleagues to discuss the projects, creating and circulating promotion materials, and giving presentations at workshops and conferences.

Phase 1 made an important contribution to our understanding of dissemination within the Alberta environment. It demonstrated that dissemination of research requires adequate resources in time, money, and leadership, and that effective communication requires that messages be customized for targeted audiences and delivered through a number of channels. The process requires the academic community to work closely with the individuals and organizations that will ultimately use the research.

While it was considered a great success, Phase 1 was essentially a building block in the development of a culture of evidence-based decision-making in health care. It helped to identify areas AHFMR should consider supporting. Our understanding of the process has continued to improve through subsequent activities in the dissemination program, including the Research in Practice province-wide consultation in 1999, the dissemination of findings in the Mistahia Project in 1999-2000, and the Seniors' Health Research Workshop held in March 2000.

Gaining Access through Community Travel and Conference Support

The Foundation supports dissemination of research through other programs, including the Community Health Travel and Visiting Lecturer program, and the Community Health Conference and Workshop program. These funds enable researchers and decision-makers to travel and attend conferences, bring in visiting experts from out of province, and hold workshops on topics important to Alberta.

SEARCH: Technology-aided Access

Gaining access to information and resources is one of the many reasons the SEARCH program has been so successful. Part of the program includes supporting participants with state-of-the-art electronic communications tools. With a computer, the Internet, library resources, and a variety of databases, participants have ready access to information critical to their research needs.

Providing Access through Library Support

The Foundation provided start-up funding for another important service to researchers, the Health Knowledge Network. The network allows members of the university communities and healthcare professionals in Alberta and the Canadian territories to search indexes of the world's health sciences literature from a computer in their office, hospital ward, laboratory, pharmacy, clinic, or home.

The network began in 1993 as a cooperative venture of the University of Calgary, the University of Alberta, and their associated teaching hospitals.

Access through Traditional Methods

The first step to "getting research information out" comes from the researchers themselves. Researchers supported through AHFMR personnel awards, training awards, and project grants attend many conferences and workshops to discuss their research. They publish articles on their work, hold teaching positions within the universities, and visit their peers for formal and informal discussions about research. All of these activities support access to research information.

AHFMR also has a long history of providing broader access to the research that it supports. On any given day, the AHFMR Communications staff members are keeping others aware of the latest developments in research through a variety of media. News of medical research advances is released to an extensive media list and profiled in the Foundation's publications as well as on the web site (www.ahfmr.ab.ca), which provides information on AHFMR programs, activities and publications. The site contains a search engine and is updated regularly.

Described by *The Report of the Third International Review of the AHFMR (1991-1997)* as "among the best in the scientific field," the Foundation's award-winning newsletters, annual and triennial reports keep the public abreast of AHFMR's activity and success in funding the work of dedicated Alberta scientists in all medical and health-related fields. The internationally acclaimed *AHFMR Research News* highlights the contributions being made daily by AHFMR-funded researchers. Produced by the Foundation four times a year, the newsletter features stories about researchers and their ongoing work, along with information about Internet and community resources. Through accessible writing, illustrations, and photographs, *Research News* helps to convey the message about the importance of research activity to a mailing list of 10,000. These newsletters are distributed free of charge within Canada.

Through another communications initiative, the Foundation reaches out to spread the word about research to Alberta's future scientists. AHFMR liaises with the science teaching community to promote a hands-on summer research experience for high school students called the Heritage Youth Researcher Summer (HYRS). The HYRS program augments the revamped high school curriculum in the area of research and technology experience, promotes research awareness, and makes young Albertans and their teachers aware of the opportunities for careers in biomedical and health research.

4.4 Linking Researchers to Research Users

> ***One of the best ways to get these research findings into practice is through face-to-face meetings and the development of working relationships among research generators and research users. We must create opportunities to facilitate the establishment of these vital links.***

One of the greatest challenges in putting research in practice is educating researchers and practitioners about their respective worlds. The academic and clinical worlds speak their own languages. They also have their own distinct cultures and different needs. Research is one way of generating information; practical experience is another.

Opportunities for researchers to link with practitioners are rewarding but are limited by time, lack of shared goals, and funding. Recognizing these limitations, the Foundation has established programs to address the need to bring researchers and research users together to share findings and, in general, to establish networks and collaborations that are key parts of effective research transfer.

SEARCH – Collaborative Team Work

SEARCH (Swift Efficient Application of Research in Community Health), a province-wide training program in community health research and research utilization, was launched in 1996 to respond to changes in Alberta's restructured healthcare system. As responsibility has shifted from government departments to regional authorities, health professionals in the regions are required to make decisions about a much broader range of local health issues than they were in the past. They must be able to identify priority health issues in their regions and make decisions based on research results that they can apply locally. For this, they need current, relevant, and timely information.

A joint initiative of the AHFMR, the regional and provincial health authorities, Alberta Health and Alberta's universities, SEARCH encourages co-operation across the health-care system – among researchers, research users, professionals in education and communication, and decision-makers at the levels of governance, executive, management, and service delivery. SEARCH funds, organizes, and delivers high quality research and leadership training programs for health professionals, who are sponsored and supported by their regional or provincial health authority or other health-care organization. Participants come from a wide variety of backgrounds – among them are nurses, managers, physiotherapists, physicians, and other health professionals – and represent the full spectrum of job responsibilities, from research-focus to practice-focus. Whatever their position, they bring to the health system the mind-set of an evidence-based culture for decision-making.

The SEARCH program consists of an intensive seven-weeks of residential training and instruction over two years, during which the participants design and carry out original research projects, both individually and in groups. Throughout this time, vital communications technology keeps SEARCH participants in close contact with the program's instructors and leaders, all of whom are highly qualified health researchers from Alberta universities. The instructors use their expertise in different disciplines and settings to provide guidance in all aspects of health research utilization, design, implementation, and management, and to serve as mentors to SEARCH participants. In return, these researchers gain valuable insight from the experts on the front lines – an understanding of the priorities of patients, communities, and institutions – and expanded opportunities to engage in collaborative applied health research projects with decision-makers.

SEARCH I began in the spring of 1996, with 25 participants representing 16 of the17 regional health regions, the Provincial Mental Health Board, and Alberta Health. SEARCH II got underway in May of 1998 with another 25 health professionals. This time the group included three family physicians (supported by the Alberta Family Practice Research Network and the Rural Physician Action Plan) and representatives from agencies that provide research or information directly to the health authorities (the Alberta Centre for Injury Control and Research, Health Canada, and Safe Communities). Preparatory pre-course work for the 2001-2003 round of SEARCH will begin in the winter of 2000.

SEARCH is a vital part of AHFMR's commitment to putting research into practice – and the program has many measures of success. Its goals address every aspect of bringing research knowledge to bear on healthcare decisions. Evaluation of the program has focused less on the traditional "products" of research, and more on the less tangible impact of new job designs, new decision-making processes, new research interest, more grant applications, and local dissemination of skills and knowledge. By building relationships and respect among researchers and research users, SEARCH creates a network for the flow of information and helps to ensure that research is a joint enterprise in which research results can be used in real situations to make a difference to health or health outcomes.

The following projects are just a few examples of how, individually and in teams, SEARCH participants are tackling research problems relevant to their own organizations and to the province.

Mothers and their newborns are discharged from the hospital more quickly in Alberta than they are anywhere else in Canada. Curious about the effect of early maternity discharge on the mothers and their babies, a group of community heath professionals working together through SEARCH decided to make a study of the practice. They conducted a literature review, compared practices across the province's 17 regional health authorities, related these to accepted guidelines, then followed up this research with a pilot study to determine the impact of early maternity discharge on health and health-related outcomes for mothers and newborns. Their findings provided a regional picture for use in decision-making and strategic planning. (Principal SEARCH researchers on this series of projects included Vickie Boechler, Capital Health Region; Lucy Buller, Mistahia Health Region; Robin Bursey, East Central Health Region; Chris Jensen-Ross, Chinook Health Region; Diane Plowman, Peace Health Region; Wanda Tennant, Alberta Health; and Sharon Yanicki, Chinook Health Region.)

As many young ***family physicians*** soon discover, being ***on call*** to patients 24 hours a day exacts a huge toll – physically, emotionally, psychologically, and financially. However, no previous studies have specifically addressed how on-call duties affect physicians and their families. With the support of the SEARCH program, family physicians Ron Gorsche (Headwaters Regional Health Authority), Rob Wedel (Chinook Regional Health Authority), and Maeve O'Beirne (Alberta Family Practice Network) have teamed up with Muriel Davidson (nurse manager, Keeweetinok Lakes Regional Health Authority), Suzanne Wolk (staff nurse, East Central Health Region), and Dennis Lowe (Information Officer, Peace Regional Health Authority). To capture firsthand impressions of the burden of being on call, the group has conducted focus groups in one urban and five rural communities across the province, and is following this with a province-wide survey of physicians to further explore the impact of the on-call experience.

Three different SEARCH projects have focused on ***falls***, which account for two-thirds of ***injuries*** in those over the age of 65. Kathy Farrell, a health promotion officer for the Palliser Health Authority, looked at the causes of falls and the effect they have on seniors. Sandra Doze, the regional health research officer of the Crossroads Regional Health Authority, conducted a retrospective audit of seniors who had suffered more than one fall over a period of less than a year. Robin Bursey, Research Coordinator for the East Central Regional Health Authority, coordinated trials of Steady as You Go (SAYgo), the fall prevention program that arose from Kathy Farrell's research.

Details of SEARCH research projects, participants, faculty, and publications are included in *Using Research to Improve Health: Five Years of Activity at AHFMR-Volume 2, An Inventory of Health Research 1995-2000.*

Grants for Travel and Conferences

The Community Health Research Visiting Lecturer program and the Community Health Research Travel grants were established in late 1997 to provide an opportunity for researchers and trainees who are not officially affiliated with one of Alberta's universities to host visiting lecturers and travel to research meetings.

A committee of community health research investigators drawn from across the province serves as advisors for the application and award processes. These Research Travel grants enable community-based researchers to make connections with other researchers and decision-makers, and to exchange related experiences and research findings. Researchers based in Alberta's universities can access funds from a similar program funded by the Foundation but administered by the respective institutions.

Funds for travel related to community-based health research are made available within the Grants and Awards program. From 1995-2000, the program awarded 24 grants totaling more than $72,000. Awards went to 15 individuals travelling to national and international conferences, workshops, and meetings. The nine remaining awards in this category supported the travel and other expenses of visiting scientists, either scientists visiting Alberta or Alberta scientists visiting other provinces or countries.

Each year the Foundation also contributes to a number of conferences, workshops, and symposia held in Alberta. These events allow researchers and decision-makers to meet and relay information about their experiences in a specific research area. They help to create a collegial environment that broadens and enriches the research experience of all participants.

Conference grants amounting to more than $78,000 have been awarded to 20 individuals and/or organizations. The number of grants awarded has substantially increased in the last three years. While only two grants were awarded in 1995-1996, 18 were awarded from 1997-2000.

Alberta Consultative Health Research Network

Another key resource in the AHFMR's capacity-building initiatives is the Alberta Consultative Health Research Network (ACHRN). Funded by the Foundation as a special initiative, the ACHRN was created in 1998 through an alliance of AHFMR, the Department of Community Health Sciences at the University of Calgary, and the Department of Public Health Sciences at the University of Alberta.

The ACHRN makes the vital link between health professionals with research questions and experts in research methods. Its goal is to increase research capacity in Alberta through the provision of consultation services and training resources. The Network operates out of two major centres – the University of Alberta and the University of Calgary – but its resources, including consultants and trainers, are recruited and available throughout the province.

The Network fits well with the Foundation's commitment to build capacity in Alberta. It is a valuable resource for decision-makers who want to perform research that is relevant to their community's needs. The resources of the Network can guide community researchers in framing what their research questions might be, help them write an effective proposal, or develop evaluation tools.

The ACHRN has already made a significant contribution to building research capacity in Alberta's health regions. Each request for a consultation or workshop appears to lead to the next, often establishing an ongoing relationship between the Network and the requesting region. Most health regions have used the Network's services, which include workshops, consultations, and an annual course on health research methods. The workshops cover a wide range of subjects, including health economics, program evaluation, and proposal writing. Most consultations are short-term and address research questions arising from ongoing projects. Advice on preparing grant applications is a common request.

The Network's annual health research methods course covers practical material that is important to researchers and decision-makers in the community, including basic computer skills, conducting information searches, developing evidence-based practice/decision-making, proposal writing, and assessment.

Over the last year in particular, demand for the ACHRN's services has increased dramatically. In addition to the 19 courses delivered in the health research methods course, the number of workshops has more than doubled in the network's second year of

operation, increasing from 11 to 24. There has also been a corresponding increase in the number of consultations. Another indicator of the network's success is that seven funded proposals have arisen out of projects involving ACHRN services.

Service demands are expected to continue to increase, as ACHRN work to broaden our network of consultants and target outreach to under-served groups and organizations across Alberta.

Community-based Research

Links between researchers and decision-makers are more readily forged and can be greatly enhanced if the researcher is based in the community. Because they are studying issues that affect a health region, community-based researchers make the process of using the research results less complicated – the relevance of their research to the region is obvious.

The Foundation supports many community-based researchers through its various grants and awards programs. Forty-one percent of all projects funded under the Health Research Fund had at least one community investigator involved, either as principal investigator or as co-investigator. In 24 of the119 projects, the principal investigator was located in a community setting – i.e., at the Alberta Cancer Board, the Alberta Mental Health Board, or with a regional health authority (Calgary Regional, Capital, Chinook). Of all the operating grants funded, 85 percent involved at least one co-investigator, and 35 percent of these involved at least one community-based co-investigator.

This high level of participation from the community can be expected to contribute to the use and valuing of research findings in decision-making. When individuals who work in health policy and service delivery are directly involved in the research, channels of communication open up and develop between the clinical community and the academic community. This helps speed up the process of putting research results into practice.

Strengthening these Links to the Community

A number of initiatives supported by AHFMR help to sustain linking activity in Alberta's healthcare system.

The Alberta Family Practice Research Network is a group of community-based primary care physicians in Alberta who are committed to fostering the understanding and dissemination of primary medical research. The Network is a special initiative funded by AHFMR and its partners (including the College of Family Physicians of Canada, Rural Physician Action Plan, the Government of Alberta, and the Universities of Calgary and Alberta) as a laboratory to build research capacity in the family practice setting.

The Network aims to study the patients from the point of view of what condition they have (epidemiology), who they are (demography), and how they can be helped (inputs and outcomes of patient care). It also intends to look at the operations of the facilities to provide care and educational aspects of patient care.

The **Community Health Research Ethics Review Committee** links community health researchers with experts in the field of research ethics. It provides a forum and process for the review of research conducted by any health region, organization, or authority that does not already have its own ethical review committee and process. The research taken under review is evaluated for its impact on individuals as well as communities.

Established by AHFMR in 1997, with the help of Dr. John Dossetor of the Provincial Health Ethics Network, the committee adheres to the Tri-Council Policy Statement on Ethical Conduct for Research Involving Humans (September, 1998). It is believed to be the first community-based ethics review board in Canada, with members from various health disciplines and regions, representatives with expertise in law, ethics, and theology, as well as one lay member. On an ad-hoc basis, the committee also includes members of the community for their perspective. The costs of the ethical review process are covered by AHFMR, and researchers are not charged a fee.

In fulfilling this role, the committee also fills a gap in the province. The public expects that all research is reviewed for ethical acceptability, but prior to the formation of the committee, not all community-based researchers had access to ethical review.

4.5 Applying Research Results

We apply research results at several levels of health-related decision-making, within institutions and organizations, and in the patient-practitioner relationship.

How research affects the front lines of health care is another test of how well we are doing at helping to put research in practice. While the Foundation is not directly involved in delivering or administering health care, we recognize that the impact of evidence in this sector is one area where health research can influence outcomes.

One of the directions for action that emerged from our province-wide consultations about how to support the application of health research was that society should recognize and reward exemplary evidence-based practice.

Technology Commercialization

There are areas where we see tangible proof of research findings at work in the practice setting. One of these is in Technology Commercialization (TC), where research, industry, and business collaborate to improve healthcare technology. These collaborations occasionally lead to new research.

To be eligible for the TC program, an initiative must be health-related, Alberta-based, demonstrate promise for real commercial success, and have unique scientific, engineering, or intellectual contribution. Approximately 42 percent of all technology commercialization projects in the last five years can be considered applied health research projects.

The following examples are illustrative of the projects that have received TC support through the program's three funding phases.

Phase I – exploring market and protecting intellectual property (maximum of $35,000)

POCO-Posture Control System for Treatment of Scoliosis

James Raso received Phase I funding to determine the market for an invention that resulted in a posture control system for the treatment of scoliosis. The system works by using biofeedback.

Phase II – testing technology and strengthening business case (maximum $150,000)

Electrical Stimulation for Wheelchair Propulsion

For those who use a wheelchair, over-use injuries to the arms from wheeling a chair around are almost as common as atrophy of the leg muscles from lack of use. Biomotion Ltd. is developing a system that uses electrical stimulation of the leg muscles and applies the resultant torque to the wheelchair. This would improve performance in the wheelchair and, at the same time, help to strengthen the legs, so that some individuals may again become functional walkers.

Phase III – implementing strategies and commercializing products (maximum $500,000)

Evidence-Based Health Information System

InfoWard is a company established to take health information products from academia to the marketplace. They received Phase III funding to assist in the commercialization of products that met the criteria of the program in this emerging area. These products have the potential to provide decision-makers in health care with the information they need when they need it.

Details of the projects from all three phases of the Technology Commercialization program are included in *using Research to Improve Health: Five Years of Activity at AHFMR-Volume 2, An Inventory of Health Research 1995-2000.* A current list of technology commercialization projects can also be viewed at www.ahfmr.ab.ca.

4.6 Measuring Progress

We need to assess the impact of our efforts on health outcomes, the use of scarce resources, the development of system capacity, and other goals.

Paying attention to how well we are doing is becoming increasingly important in public systems. The traditional yardsticks for research (publications, grants awarded) are very important when it comes to applied health research as well; indeed, research utilization is not possible without them. In addition to these traditional measures, systems must be developed to gauge the actual uptake and use of research findings in applied settings.

There are, however, a number of ways in which the AHFMR tracks its progress. The first of these is peer review, since most activities are reviewed regularly as part of the normal process. As stated in the Report of the Third International Board of Review, "AHFMR's peer review system continues to hone excellence, and the Foundation's support has helped attract and retain the very best people in the province's universities and hospitals." The second is the annual reporting process and the public presentation of annual and triennial reports. The third is the International Board of Review process, the most recent being the review of the operation of the AHFMR for the period 1991-1997. In citing the many achievements of AHFMR investigators, the Board members credit the Foundation's practice of concentrating on "the training, recruitment, establishment and maintenance of highly skilled researchers in the province." The report also praises the Foundation's "responsive and responsible research initiatives" as it met the challenge of "monumental changes in the health care environment" in the six-year period.

Two focused activities in the recent past were designed to increase our understanding of measuring potential impact of health research. Professor Martin Buxton of Brunel University, Middlesex, UK, spent three months at AHFMR to conduct exploratory case studies on two research thrusts – one biomedically-oriented and the other in the applied field. This work was followed in May 1999 by a workshop entitled "Bang for the Buck," which involved participants from three countries, including 19 Canadians. Drawing upon their collective experience, the participants identified several outcomes or measurements to be assessed to determine the impact of research. Through their discussions, the participants also identified ways to implement these measurements.

The work required to find new means of evaluating progress in applied settings is in the very early stages in Alberta and in the rest of the world. Plans are now underway to conduct a survey to assess the degree of research dissemination and utilization among key Alberta groups, including physicians, researchers, and decision-makers, and to examine the factors that affect utilization.

5 FINANCIAL INFORMATION

The Alberta Heritage Foundation for Medical Research enjoys an international reputation for supporting excellence in both biomedical and health research in Alberta. Biomedical research provides the basic foundations for progress in health. It is a critical part of the activities of the Foundation and, as such, accounts for the majority of AHFMR expenditures. However, since the 1992 decision to lead new initiatives in the areas of patient-based and health research in the province – and realizing the importance of following through to ensure that this research actually results in improvements in the health system in a timely fashion – AHFMR has stepped up its support for applied health research.

Alberta Heritage Foundation for Medical Research Research Funding by Year 1995/1996 - 1999/2000

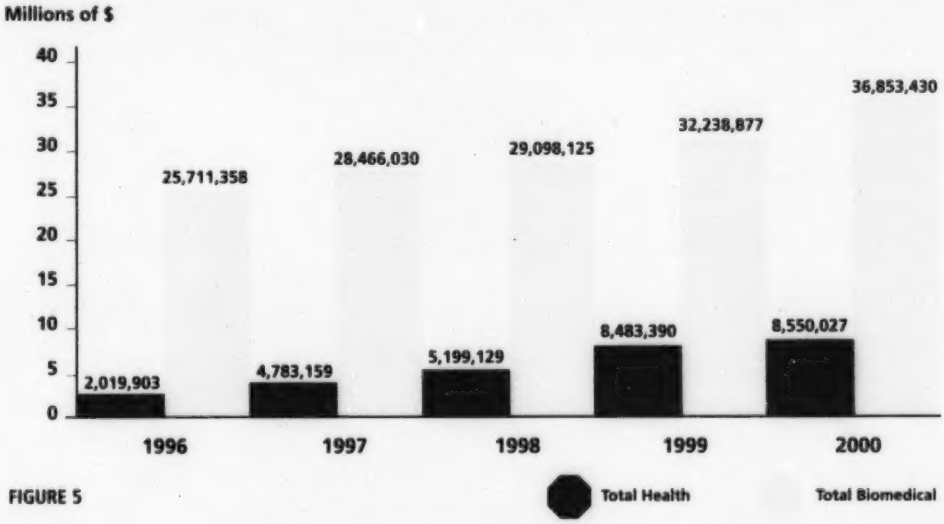

FIGURE 5

Since 1995, total program spending for the Foundation has been in excess of $181 million. In the last five years, support for both biomedical and health research has grown substantially. This growth is depicted in Figure 5.

Not unexpectedly, as shown in Figure 6, the largest proportion of AHFMR applied health research funding contributes to adding to our knowledge base. Linking researchers and research users constitutes the next largest proportion of resources. Although it is helpful to examine the relative proportions of resources spent in each of the components of the Research in Practice framework, it is important to remember that these components are not mutually exclusive. For example, researchers who are supported through salary awards spend some of their time in activities that would fall under the category of "assessing what we know," in addition to linking with research users. A similar overlap exists between other categories within the framework.

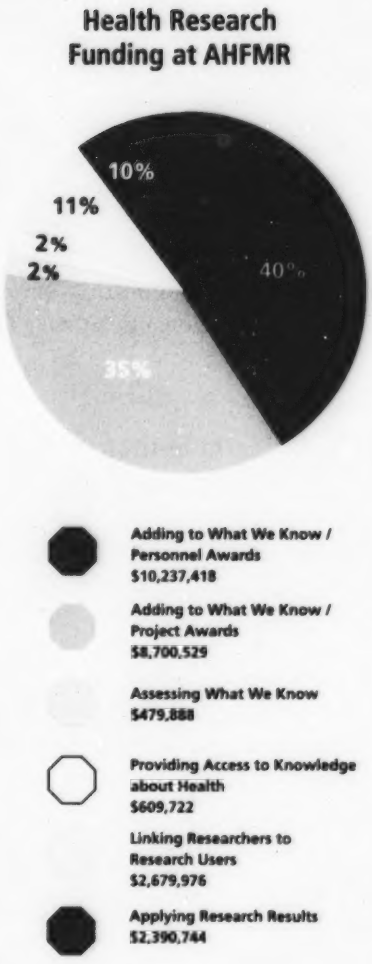

FIGURE 6

6 OUR ADVISORS

AHFMR Board of Trustees – Health Committee

This committee of the Board of Trustees of the Foundation is concerned with the Foundation's programs and activities related to health services research, population health research, and health technology assessment. The committee generally meets in advance of Trustee meetings to consider agenda items in these areas, and provides advice to the full Board during the regular meetings.

Health Advisory Committee

Constituted in 1995, this committee consists of individuals from around the world with expertise in applied health research. It provides advice to the Foundation on the development of various programs for the support of health services research, dissemination, population health research, and health technology assessment. The committee is also charged with the task of reviewing the applications for Health Personnel Awards.

Health Research Advisory Committee

This committee's role is to advise the Foundation on the development, support, review, updating, and implementation of a Health Research Agenda for the province of Alberta. The committee members are professionals in research and health care throughout the province.

The Research in Practice Task Force

The Research in Practice Task Force was created in 1999 to develop a strategic direction to ensure the dissemination, uptake, and utilization of research findings in the province. Members of the Task Force have expertise in health research and in the needs of decision-makers and practitioners.

Alberta Health Collaboration Advisory Committee

This committee is drawn from the scientific community of Alberta and the rest of Canada and is made up of health researchers and policy and clinical decision-makers knowledgeable in research methodology. The committee reviews letters of intent and applications for support to the Health Research Fund.

SEARCH Steering Committee

This committee provides advice on the overall direction of the SEARCH program, including defining operational terms, developing a plan of implementation and evaluation, and determining candidate selection process. The Steering Committee has established three working groups in curriculum development, recruitment and selection, and evaluation and impact.

Dissemination Advisory Committee

This committee existed in the early development of the dissemination program. It was Alberta-based and provided advice on setting up the dissemination program.

Health Technology Assessment Advisory Committee

The committee advises the Foundation on the development, support, review, updating, implementation, and evaluation of health technology for the province of Alberta. It guides the work of the Health Technology Assessment unit. Its membership is drawn from Canada and the US and includes representation from Alberta Health and Wellness, the regional health authorities, the academic and health services research community, and health professional organizations.

Technology Commercialization Applications Advisory Committee

This committee participates in the peer review and makes recommendations regarding funding of projects. It is an internationally constituted committee comprising individuals with extensive research, industry, and commercialization experience from across North America.

Alberta Consultative Health Research Network Advisory Committee

The committee advises on strategic directions of the ACHRN that will increase capacity in the province to commission, conduct, and utilize research to improve the health of Albertans and the functioning of the health system. Membership includes Canadians who have experience in enhancing community capacity to engage in research-related activities.

Community Health Research Ethics Review Committee

This committee was established in 1997 to review the ethical acceptability of any health research involving human subjects. Reviewed research includes research supported or funded by AHFMR that is conducted in Alberta in any health region, authority, or organization that does not already have a duly constituted ethical review committee and process.

A complete listing of Committee members from 1995-2000 can be found in *Using Research to Improve Health: Five Years of Activity at AHFMR-Volume 2, An Inventory of Health Research 1995-2000.*

7 A FINAL NOTE

Let's return for a moment to the hypothetical researchers described in the introduction to this report, the ones whose findings may help to change the behaviours of teens who smoke. Can we get the message out to those whose efforts can translate that knowledge into results? Can we be certain that their information – the result of rigorous research – will have an impact on young people's health?

Realizing the maximum impact from any health research requires dedicated, focused, and knowledgeable effort within each component of the Research in Practice process. As this overview and the accompanying inventory demonstrate, AHFMR is committed to ensuring that those efforts are made, and that the people and resources are in place to facilitate research utilization in health and health services delivery.